

TALES FROM THE CRIPT

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Research dedicated to teaching and learning is entering an era of expansion. Part of this burgeoning is due to funding endeavours spearheaded by the TSC and its Small Grant for Research on Teaching. This brief will highlight one of the projects funded partially by the TSC grant.

Many undergraduates, and all medical and dental students, take some form of anatomical training. Like many experiential learning environments, however, post-secondary curriculum time dedicated to teaching laboratories has either diminished or evolved into something not yet proven to be better. The literature laments over the full impacts of these alterations¹ and warns that outcomes may not be fully recognized until professionals start making anatomically incorrect decisions affecting health outcomes². Furthermore, the rapidity of curriculum change without apparent evidence is disconcerting, should not be approached haphazardly,³ and should be scrutinized at each step.

The Corps for Research of Instructional and Perceptual Technologies, or the CRIPT, attempts to test, quantify, and create a foundation of evidence-based teaching and learning tools at each step of development and integration into the curriculum. It has received wonderful support from the Teaching Support Centre and other grass-roots groups such as GAMES at the Schulich School of Medicine and Dentistry to conduct hands-on research of teaching tools. The tools and approaches developed at the CRIPT may be specific to anatomical education, but inevitably the principles extend to broader teaching and learning paradigms. A recent study undertaken by Robin Hopkins, a Masters of Clinical Anatomy student and me, explored a new method of optimizing the shrinking lab time facing anatomy students. In the study, she probed whether students in a gross anatomy lab could utilize stereoscopic (3D) digital models with equal efficacy to cadaveric materials. The digital model is virtual and represents a visuospatial interpretation of the traditional dissection many students experience. Using a pseudo-crossover, pretest-posttest design, Hopkins analyzed student quiz results in addition to sampling self-reported attitudes and perceptions of both learning environments. Furthermore, she created a hybrid group combining gross cadaver dissection with digital 3D renderings of the lab materials. Her results suggest that all lab environments purvey the pertinent information to students equally as no differences appear in pre-test

post-test student scores. In the cross-over component, the results of her assessment of student perceptions are less clear. It appears that the 18-20 year old “digital native” is not ready to let digital anatomy replace gross dissection. Interesting anecdotes flow from qualitative sampling such as “ease of use” of digital models and the lack of the “ick” factor with digital dissection. Deeper themes also surface relating to learning theory tendencies. For example, students have a natural affinity to the method of their first introduction to anatomy (digital prefer digital and dissection prefer dissection methods); curriculum concerns

are echoed by the participants such as lack of time to fully complete lab and steep in the knowledge; and even student’s interpretation of passive vs. active learning come from their comments.

Although we are just a scratch on the surface, projects such as this will provide the needed data to advance both the *science* of understanding how modern

students think and the *art* of curriculum/course design to achieve the best student comprehension and retention. What excites us about this new arm of research is how it fits into both qualitative and quantitative research designs, how it has immediate impacts, and how it’s cutting, or sometimes bleeding, edge research extending into unknown territories.

1. Collins TJ, Given RL, Hulsebosch CE, Miller BT. Status of gross anatomy in the US and Canada: Dilemma for the 21st century. *Clinical Anatomy*. 1994;7:275-296.
2. Cottam WW. Adequacy of medical school gross anatomy education as perceived by certain postgraduate residency programs and anatomy course directors. *Clinical Anatomy*. 1999;12:55-65.
3. Terrell M. Anatomy of learning: Instructional design principles for the anatomical sciences. *The Anatomical Record (Part B: The New Anatomists)*. 2006;289B:252-260.

